

ABSTRACT

At least one embodiment of the present inventive technology focuses on a vaneless diffuser adapted for establishment extra-radially of a centrifugal fan, wherein the diffuser may effect an optimal transformation of velocity pressure into static pressure of a fluid (e.g., air) impelled by a centrifugal fan by decreasing that fluid's tangential velocity as it travels through the diffuser, without causing recirculation of air output from the diffuser back into the diffuser. Such diffuser may effect such a decrease in tangential velocity by radially extending the interface through which impelled air is output from the diffuser to a downflow fluid handling environment such as, e.g., a scroll and/or a plenum. The diffuser may converge in a direction parallel with the axis of rotation of the centrifugal fan to avoid fluid recirculation and/or may incorporate acoustical material so as to reduce the amount of material necessary for effective noise reduction as compared with convention noise reduction methods.